# DEPARTMENT OF ENVIRONMENTAL CONSERVATION AIR QUALITY CONSTRUCTION PERMIT

Permit No. 0022-AC022 Application No. X93	Issue Date: Final Permit January 30, 200
The Department of Environmental Conservation, und 18 AAC 50, issues a construction permit to the Perm for the relocation of two generators to the <b>Orca Pow</b>	ittee, Cordova Electric Cooperative, Inc.,
This permit satisfies the obligation of the owner and set out in AS 46.14.130(a).	operator to obtain a construction permit as
As required by AS 46.14.120(c), the Permittee shall construction permit.	comply with the terms and conditions of this
John F. Kuterbach, Manager	Date
Air Permits Program	

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#### **List of Abbreviations Used in this Permit**

AAC Alaska Administrative Code	
ADEC Alaska Department of Environmental Conservation	
AS Alaska Statutes	
ASTM American Society for Testing and Materials	
C.F.R Code of Federal Regulations	
COMS Continuous Opacity Monitoring System	
dscf Dry standard cubic feet	
EPA US Environmental Protection Agency	
gr./dscf grain per dry standard cubic feet (1 pound = 7000 grains)	
GPH gallons per hour	
HAPs Hazardous Air Pollutants [hazardous air contaminants as defined in AS 46.14.990(14)]	
ID Source Identification Number	
MACT Maximum Achievable Control Technology	
NESHAPs Federal National Emission Standards for Hazardous Air Pollutants [as defined in 40 C.F.R. 61]	
NSPS Federal New Source Performance Standards [as defined in 40 C.F.R. 60	)]
ppm Parts per million	
PS Performance specification	
PSD Prevention of Significant Deterioration	
RM Reference Method	
SICStandard Industrial Classification	
SO <sub>2</sub> Sulfur dioxide	
TPH Tons per hour	
TPY Tons per year	
VOC volatile organic compound [as defined in 18 AAC 50.990(103)]	
wt% weight percent	

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#### Section 1. Identification

Names and Addresses

Permittee: Cordova Electric Cooperative, Inc.

P.O. Box 20

Cordova, AK 99574

Facility: Orca Power Plant

Location: 60° 33′ 3″ North; 145° 45′ 14″ West

Physical Address: 103 Orca Road

Cordova, AK 99574

Owner: Cordova Electric Cooperative, Inc.

P.O. Box 20

Cordova, AK 99574

Operator: Cordova Electric Cooperative, Inc.

P.O. Box 20

Cordova, AK 99574

Permittee's Responsible Official Kenneth J. Gates, General Manager

Designated Agent: Roger Kemppel c/o Kemppel, Huffman, & Ellis, P.C.

255 E. Fireweed Lane, Suite 200

Anchorage, AK 99503

Facility and Building Contact: Kenneth J. Gates, General Manager

Cordova Electric Cooperative, Inc. P.O. Box 20, Cordova, AK 99574

(907) 424-5555

SIC Code of the Facility: 4911 Electric Services

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#### Section 2. General Emission Information

Emissions of Regulated Air Contaminants, as provided in the Permittee's application:

Particulate Matter (PM-10), Sulfur Oxides (SO<sub>2</sub>), Nitrogen Oxides (NO<sub>x</sub>), Carbon Monoxide (CO), and Volatile Organic Compounds (VOC).

#### Construction Permit Classifications:

The Orca Power Plant is classified as a Prevention of Significant Deterioration (PSD) Major Facility as defined in 18 AAC 50.300(c)(1) because it has the potential to emit more than 250 tons per year of a regulated air contaminant in an area classified as attainment or unclassifiable.

Modification Classifications as described under 18 AAC 50.300(h):

The Orca Power Plant is not classified under 18 AAC 50.300(h) as a modified facility.

Owner Requested Limit Classification under 18 AAC 50.305:

CEC requested conditions that revise or rescind the terms and conditions of Permit to Operate No. 9422-AA008 as allowed by 18 AAC 50.305(a)(3) and requested limits that allow the facility to avoid PSD modification classification as allowed by 18 AAC 50.305(a)(4).

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#### Section 3. Source Inventory and Description

Sources listed below have specific monitoring, record keeping, or reporting conditions in this permit. Source descriptions and ratings are given for identification purposes only.

**Table 1. Source Inventory** 

ID	Source Name	Source Description	Rating/size	
1	Diesel Elect. Generator #3	Fairbank Morse 38TD8-1/8	2,403 kW	
2	Diesel Elect. Generator #4	GM, EMD 20-645 E4	2,500 kW	
3	Storage Tank	Diesel oil storage	15,000 gal.	
4	Storage Tank	Diesel oil storage	10,000 gal.	
5	Diesel Elect. Generator #5	Caterpillar 3516	1,000 kW	
6	Diesel Elect. Generator #6	Caterpillar 3516	1,000 kW	
7	Burnham Diesel Boiler	Burnham	0.394 MMBtu/hr <sup>1</sup>	
8	Burnham Diesel Boiler	Burnham	0.394 MMBtu/hr <sup>1</sup>	

Note: Calculated heat Rate based on maximal fuel flow rate of 3.0 gallons/hr, a heating value of 19,300 Btu/lb and a fuel density of 6.8 lb/gallon for light fuel oils (AP-42).

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#### Section 4. Source-Specific Requirements

Fuel Burning Equipment—Source IDs 1, 2, and 5 through 8

#### **Operational Restrictions**

- 1. The Permittee shall only operate Source IDs 1, 2, 5, and 6 such that no more than three diesel generators are operated at the same time. The approved operating scenarios are as follows:
  - 1.1 Operate two engines Source IDs 1 and 2 only when both Caterpillar engines Source IDs 5 and 6 are shut down; or
  - 1.2 Operate up to two Caterpillar engines Source IDs 5 and 6 concurrently with no more than one of engines Source IDs 1 or 2.
- 2. Monitor, record, and report the following:
  - 2.1 Record the time of startup, date, and duration each of Source IDs 1, 2, 5, and 6 operates.
  - 2.2 Report as excess emissions any period for which operations deviate from condition 1.1 or 1.2. List the time, date, and duration of operations in the excess emissions report required by condition 29.

#### Visible Emissions

- 3. The Permittee shall not cause or allow visible emissions, excluding condensed water vapor, emitted from Source IDs 1, 2, and 5 through 8 to reduce visibility through the exhaust effluent by greater than 20% for more than three minutes in any one hour.
  - 3.1 Monitor, record, and report according to Section 11.

[18 AAC 50.055(a)(1) & 18 AAC 50.320(a), 1/18/97]

#### Particulate Matter

- 4. The Permittee shall not cause or allow particulate matter emitted from Source IDs 1, 2, and 5 through 8 to exceed 0.05 grains per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours.
  - 4.1 Monitor, record, and report according to Section 11.

[18 AAC 50.055(b)(1) & 18 AAC 50.320(a), 1/18/97]

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#### Sulfur Compound Emissions

5. The Permittee shall not cause or allow sulfur compound emissions, expressed as SO<sub>2</sub>, from Source IDs 1, 2, and 5 through 8 to exceed 500 PPM averaged over three hours.

[18 AAC 50.055(c), 1/18/97]

- 5.1 Compliance with this condition is assured by using a grade of fuel that limits sulfur content to less than 0.5 percent by weight, such as Diesel Fuel-1 or Diesel Fuel-2.
- 5.2 Obtain a statement or receipt from the fuel supplier showing the grade of the fuel for each shipment of fuel delivered to the facility. If a certificate is not available from the supplier, analyze a representative sample of the fuel to determine the sulfur content using ASTM method D129-00, D1266-98, D1552-95, D2622-98, D4294-98, D4045-99, or an alternative method approved by the Department.
- 5.3 Report per condition 29 as a permit deviation whenever burning, at the Orca Plant, fuel that does not meet the requirements of condition 5.1. When reporting under this condition, include a material balance calculation of the sulfur compound emissions, in PPM by volume, expected from this fuel, made in accordance with Section 13.
- 5.4 Include in the report required by condition 30 a list of the fuel grades received at the facility during the reporting period, and each report required by condition 5.3.
- 5.5 Keep records of the sulfur contents of each shipment of fuel, each calculated three-hour SO<sub>2</sub> concentration, and all test results and calculations required under conditions 5.2, 5.3, or 5.4. Report copies of the records with the report required by condition 30.
- 5.6 Submit an Excess Emission report in accordance with condition 29 if a three-hour exhaust concentration, calculated pursuant to condition 5.3, is greater than 500 PPM.

[18 AAC 50.320(a), 1/18/97]

#### Volatile Organic Liquid Storage Vessels

6. For Source ID 3 the Permittee shall keep readily accessible records for the life of the tanks showing the dimensions and an analysis showing the capacity of the storage vessels.

[18 AAC 50.040(a)(2)(M), 1/18/97]

[Federal Citation: 40 C.F.R. 60.110b(c) & 40 C.F.R. 60.116b(a)-(b), 7/1/99]

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#### Section 5. Facility-Wide Requirements

#### Nitrogen Compound Emissions Limit

7. To avoid classification as a prevention of significant deterioration (PSD) major facility, the Permittee shall limit the NO<sub>X</sub> emissions from Source IDs 1, 2, 5, and 6 to no more than 248 tons total in any consecutive twelve-month period. Monitor and record for each of Source IDs 1, 2, 5, and 6 listed in Section 3 as follows:

- 7.1 Monitor and record the daily fuel consumption (gal/day).
- 7.2 Calculate and record the daily average  $NO_X$  emission rate using the following equation:

ER = FC \* EF

Where: ER = Emission rate (lb/day)

FC = Fuel consumption (gal/day) as set out in condition 7.1 EF = Emission factor (lb/gal) as set out in conditions 7.2.1 and

7.2.2

#### 7.2.1 For Source IDs 1 and 2:

- a Use the Department-approved fuel-specific emission factors determined from the results of source tests conducted under conditions 9, 10 and 11.
- b Prior to Source testing, the Permittee shall use an emission factor of 3.84 lb/MMBtu (from AP-42, Table 3.4.1, for Uncontrolled Large Stationary Diesel Engines with a 20% factor of safety adjustment), the hours of operation, and converted for the fuel heating value of 0.0193 MMBtu/lb and a fuel density of 6.8 lb/gal.

#### 7.2.2 For Source IDs 5 and 6:

- a Prior to Department approval of fuel-specific emission factors developed under condition 10, use vendor supplied emission factors as set out in Section 15.
- b After Department approval use fuel-specific emission factors developed under condition 10.
- 7.3 Calculate and record the monthly NO<sub>X</sub> emission rate (lb/month) by summing the daily emission rates calculated in accordance with condition 7.2. Convert the results to tons per month and tons per 12-month rolling period.

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8. The Permittee shall submit in accordance with condition 30 summaries of the monthly and 12-month rolling total NO<sub>X</sub> emissions from each generator, Source IDs 1, 2, 5 and 6, obtained in condition 7.

#### 9. The Permittee shall:

- 9.1 Conduct four NO<sub>X</sub> emission source tests on each of existing Source IDs 1 and 2 within 90 days after the total facility wide NO<sub>X</sub> emissions exceed 225 tons per 12-month rolling period, in accordance with Section 8 of this permit. During each test, measure exhaust flow rate and percent oxygen in the exhaust gas as set out in 40 CFR 60 Appendix A, Test Methods 1 through 4.
- 9.2 Conduct four NO<sub>X</sub> emission source tests on each of new Source IDs 5 and 6 within 90 days after the total facility wide NO<sub>X</sub> emissions exceed 225 tons per 12-month rolling period, in accordance with Section 8 of this permit. During each test, measure exhaust flow rate and percent oxygen in the exhaust gas as set out in 40 CFR 60 Appendix A, Test Methods 1 through 4.
- 10. The Permittee shall conduct source tests under condition 9 at or about each of the following loads: 25%, 50%, 75%, and 100% of the rated engine capacity or at four points in the normal operating range of each engine, including the minimum and peak load. The Permittee shall monitor fuel consumption and electric power production continually during each run of the emission source tests to derive fuel-specific emission factors. The monitored parameters shall be documented at least once every fifteen minutes during the source test and reported in the emission source test report required by condition 24. Derive fuel-specific emission factors based on process monitoring, records, and results of each source test. Within 45 days after completing emission source tests under condition 9.1 and 9.2, submit for Department approval the assumptions, calculations, and proposed emission factors for each of the affected sources at the four specified loads.
- 11. After Department approval of source test results, the Permittee shall calculate NO<sub>X</sub> emissions per condition 7.2 by using the daily fuel consumption (gal/day) monitored in condition 7.1 and the corresponding fuel-specific emission factor (lb/gal) determined from results of source tests conducted in condition 10. For operation in between the source test quartile ranges, use the most conservative fuel-specific emission factor derived for that range for each Source.
- 12. Notify the Department in writing within 10 days upon finding that  $NO_X$  emissions exceed 225 tons in any 12-month rolling period, for Source IDs 1, 2, 5, and 6.

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#### Section 6. Permit Continuity

13. Except as provided for in COBC No. 00-338-50-1545 or as revised or rescinded herein, the Permittee shall comply with terms and conditions of Air Quality Control Permit to Operate No. 9422-AA008, effective December 20, 1994, as amended through March 29, 1996.

- 14. If permit terms and conditions listed in this permit conflict with those of Permit to Operate No. 9422-AA008, the Permittee shall comply with terms and conditions listed herein.
- 15. Condition 4 and Exhibit B of Permit to Operate No. 9422-AA008 are rescinded.

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#### Section 7. Generally Applicable Requirements

16. **Stack Injection.** The Permittee shall not release materials other than process emissions, products of combustion, or materials introduced to control pollutant emissions from a stack at a source constructed or modified after November 1, 1982, unless approved in writing by the Department.

[18 AAC 50.055(g) & 18 AAC 50.310(m), 1/18/97]

17. **Air Pollution Prohibited.** The Permittee shall not cause any emission which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property.

[18 AAC 50.110, 5/26/72 & 18 AAC 50.040(e), 1/18/97]

17.1 Within 24 hours of receiving a complaint that is attributable to emissions from the facility, investigate the complaint and initiate corrective actions to alleviate or eliminate the cause of the complaint.

[18 AAC 50.240(c), 1/18/97]

17.2 Keep records of the date, time, and nature of all complaints received and summary of the investigation and corrective actions undertaken for complaints attributable to emissions from the facility. Upon request of the Department, submit copies of the records.

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#### Section 8. General Source Testing and Monitoring Requirements

18. **Requested Source Tests.** In addition to any source testing explicitly required by this permit, the Permittee shall conduct source testing as requested by the Department to determine compliance with applicable permit requirements.

[18 AAC 50.220(a), 1/18/97]

- 19. **Operating Conditions.** Unless otherwise specified by an applicable requirement or test method, the Permittee shall conduct source testing:
  - 19.1 At a point or points that characterize the actual discharge into the ambient air; and
  - 19.2 At the maximum rated burning or operating capacity of the source or another rate determined by the Department to characterize the actual discharge into the ambient air.

[18 AAC 50.220(b), 1/18/97]

- 20. **Reference Test Methods.** The Permittee shall use the following as reference test methods when conducting source testing for compliance with this permit:
  - 20.1 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(a) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 60.

[18 AAC 50.040(a), & 18 AAC 50.220(c)(1)(A), 1/18/97] [Federal Citation: 40 C. F. R 60, 7/1/99]

20.2 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(b) must be conducted in accordance with the methods and procedures specified in 40 C.F.R. 61.

[18 AAC 50.040(b), & 18 AAC 50.220(c)(1)(B), 1/18/97]

20.3 Source testing for compliance with requirements adopted by reference in 18 AAC 50.040(c) must be conducted in accordance with the source test methods and procedures specified in 40 C.F.R. 63.

[18 AAC 50.040(c), & 18 AAC 50.220(c), 1/18/97]

20.4 Source testing for the reduction in visibility through the exhaust effluent must be conducted in accordance with the procedures set out in Section 12 of this permit.

[18 AAC 50.220(c), 1/18/97]

20.5 Source testing for emissions of particulate matter, sulfur compounds, nitrogen compounds, carbon monoxide, lead, volatile organic compounds, fluorides, sulfuric acid mist, municipal waste combustor organics, metals, and acid gases must be conducted in accordance with the methods and procedures specified 40 C.F.R. 60, Appendix A.

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[18 AAC 50.040(a)(4), & 18 AAC 50.220(c)(1)(E), 1/18/97] [Federal Citation: 40 C. F. R. 60, Appendix A, 7/1/99]

20.6 Source testing for emissions of PM-10 must be conducted in accordance with the procedures specified in 40 C.F.R. 51, Appendix M.

[18 AAC 50.035, & 18 AAC 50.220(c)(1)(F), 1/18/97] [Federal Citation: 40 C. F. R. 51, Appendix M, 7/1/97]

20.7 Source testing for emissions of any contaminant may be determined using an alternative method approved by the Department in accordance with Method 301 in Appendix A to 40 C.F.R. 63.

[18 AAC 50.040(c), & 18 AAC 50.220(c)(2), 1/18/97] [Federal Citation: 40 C. F. R. 63, Appendix A, 301, 7/1/99]

21. Excess Air Requirements. To determine compliance with this permit, standard exhaust gas volumes must only include the volume of gases formed from the theoretical combustion of fuel, plus the excess air volume normal for the specific source type, corrected to standard conditions (dry gas at 70° F and an absolute pressure of 760 millimeters of mercury).

[18 AAC 50.220(c)(3) & 18 AAC 50.990(88), 1/18/97]

- 22. **Test Plans.** Before conducting any source tests, the Permittee shall submit a plan to the Department. The plan must include the methods and procedures to be used for sampling, testing, and quality assurance, and must specify how the source will operate during the test and how the Permittee will document this operation. A complete plan must be submitted within 60 days of receiving a request under Permit condition 18, and at least 30 days before the scheduled date of any tests.
- 23. **Test Notification.** At least 10 days before conducting a source test, the Permittee shall give the Department written notice of the date and time the source test will begin.
- 24. **Test Reports.** Within 45 days after completing a source test, the Permittee shall submit two copies of the results, to the extent practical, in the format set out in the *Source Test Report Outline* of Volume III, Section IV.3, of the State Air Quality Control Plan, adopted by reference in 18 AAC 50.030(8). The Permittee shall certify the results as set out in Permit condition 25.

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# Section 9. General Record Keeping, Reporting, and Compliance Certification Requirements

25. **Certification.** The Permittee shall certify all reports, compliance certifications, or other documents submitted to the Department under this permit by including the signature of a responsible official for the permitted facility following the statement: "Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete." For the same six-month reporting period, the excess emission reports submitted pursuant to condition 29 may be certified with the operating report required by condition 30 of this permit. All other reports must be certified upon submittal.

[18 AAC 50.205, 1/18/97]

- 26. **Submittals.** Unless otherwise directed by the Department or this permit, the Permittee shall send reports, compliance certifications, and other documents required by this permit to ADEC, Air Permits Program, 610 University Avenue, Fairbanks, AK 99709-3643, ATTN: Compliance Technician.
- 27. **Information Requests.** The Permittee shall furnish to the Department, within a reasonable time, any information the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit, or to determine compliance with the permit. Upon request, the Permittee shall furnish to the Department copies of records required to be kept by this permit. The Department, in its discretion, will require the Permittee to furnish copies of those records directly to the federal administrator.

[18 AAC 50.200,1/18/97]

- 28. **Record Keeping Requirements.** The Permittee shall keep all records required by this permit for at least five years after the date of collection, including:
  - 28.1 Copies of all reports and certifications submitted pursuant to this Section of this permit.
  - 28.2 Records of all monitoring required by this permit, and information about the monitoring including:
    - 28.2.1 Calibration and maintenance records, original strip chart or computer-based recordings for continuous monitoring instrumentation;
    - 28.2.2 Sampling dates and times of sampling and measurements;
    - 28.2.3 The operating conditions that existed at the time of sampling or measurement;
    - 28.2.4 The date analyses were performed;

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- 28.2.5 The location where samples were taken;
- 28.2.6 The company or entity that performed the sampling and analyses;
- 28.2.7 The analytical techniques or methods used in the analyses; and
- 28.2.8 The results of the analyses.
- 29. Excess Emission and Permit Deviation Reports. The Permittee shall report all emissions or operations that exceed or deviate from the requirements of this permit or that present a potential threat to human health or safety as soon as possible, but no later than 48 hours, after the event commences. The report must include the information listed on the form contained in Section 14 of this permit. The Permittee may use this form to report emissions under this condition.

[18 AAC 50.235(a)(2), 18 AAC 50.240(c)]

- 30. **Facility Operating Reports.** During the life of this permit, the Permittee shall submit an original and two copies of an operating report by August 1 for the period January 1 to June 30, and by February 1 for the period July 1 to December 31. This report must include copies of the records required to be reported by the conditions of this permit. In addition, the report must include a listing of all deviations from the requirements of this permit that occurred during the reporting period. For each deviation, the report must identify:
  - 30.1 The date of the deviation;
  - 30.2 The equipment involved;
  - 30.3 The permit condition;
  - 30.4 A description of the deviation; and
  - 30.5 Any corrective action or preventive measures taken and the date of such actions.
- 31. **Annual Compliance Certification.** Each year by February 1, the Permittee shall compile and submit to the Department an original and two copies of an annual compliance certification report as follows:
  - For each permit term and condition set forth in Section 4 through Section 9 of this permit, including terms and conditions for monitoring, reporting, and record keeping:
    - 31.1.1 Certify the compliance status over the preceding calendar year consistent with the monitoring required by this permit;
    - 31.1.2 State whether compliance is intermittent or continuous; and

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31.1.3 Briefly describe each method used to determine the compliance status.

31.2 Submit a copy of the report directly to the U.S. EPA-Region 10, Office of Air Quality, M/S OAQ-107, 1200 Sixth Avenue, Seattle, WA 98101.

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#### Section 10. Standard Conditions Not Otherwise Included in the Permit

32. Consistent with Alaska law, for purpose of submitting compliance certifications or establishing whether or not the Permittee has violated or is in violation of any standard in this permit, nothing in this permit precludes the use of any credible evidence or information relevant to whether the facility would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[Federal Citation: 40 C.F.R. 52.12(c), 7/1/99]

- 33. The Permittee must comply with each permit term and condition. Noncompliance constitutes a violation of AS 46.14, 18 AAC 50, and the Clean Air Act, except for those requirements designated as not federally-enforceable, and is grounds for:
  - 33.1 An enforcement action;
  - Permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or
  - 33.3 Denial of a permit renewal application.
- 34. It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.
- 35. Each permit term and condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of this permit.
- 36. Compliance with permit terms and conditions is considered to be compliance with those requirements that are:
  - 36.1 Included and specifically identified in the permit; or
  - 36.2 Determined in writing in the permit to be inapplicable.
- 37. The permit may be modified, reopened, revoked and reissued, or terminated for cause. A request by the Permittee for modification, revocation and reissue, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- 38. The permit does not convey any property rights of any sort, nor any exclusive privilege.
- 39. The Permittee shall allow an officer or employee of the Department or an inspector authorized by the Department, upon presentation of credentials and at reasonable times with the consent of the owner or operator, to:

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39.1 Enter upon the premises where a source subject to the permit is located or where records required by the permit are kept;

- 39.2 Have access to and copy any records required by the permit;
- 39.3 Inspect any facilities, equipment, practices, or operations regulated by or referenced in the permit; and
- 39.4 Sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.

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#### Section 11. Visible Emissions and Particulate Matter Monitoring Plan

#### Visible Emissions Observations

40. Except as provided in Permit conditions 41 and 42, the Permittee shall observe the exhaust of each source for visible emissions using either the visible-emission plan in condition 40.1 or the visible-emission plan in condition 40.2. The Permittee may change visible emission plans for a source at any time.

- 40.1 **Method-9 Plan.** Within 6 months after the issue date of this permit or within 14 calendar days after changing from the Smoke/No-Smoke Plan (condition 40.2), whichever is later, and at least every 1,000 hours that a source operates thereafter, observe its exhaust for 60 minutes to obtain 240 individual 15-second opacity readings in accordance with Section 12; or
- 40.2 **Smoke/No-Smoke plan.** During each calendar day that a source operates, observe the exhaust for the presence or absence of visible emissions, excluding condensed water vapor. Record the following information in a written log for each observation and submit copies of the records upon request of the Department:
  - 40.2.1 The date and time of the observation;
  - 40.2.2 From Table 1. Source Inventory of this permit, the ID of the source observed:
  - 40.2.3 Whether visible emissions are present or absent in the exhaust;
  - 40.2.4 If the source starts operation on the day of the observation, the startup time of the source; and
  - 40.2.5 Name, title, and signature of the person making the observation.
- 41. The Permittee may reduce the number of 60-minute observations required by the Method 9 Plan (condition 40.1) to one observation for every 4,380 hours of source operation, provided that:
  - 41.1 No more than 8 individual 15-second readings during each of the 60-minute observations conducted during 4,000 hours of operation are greater than 20 percent opacity; and
  - 41.2 Four or more 60-minute observations are conducted during the 4,000-hour period, at an interval of one observation each 1,000 hours of observation or less.

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42. The Permittee may reduce the number of visible observations required by condition 40.2 to one observation for every 30 calendar days that a source operates, if the source operates without visible emissions in the exhaust during the most recent 30 calendar days that the source operates.

43. The Permittee is not required to comply with conditions 22, 23, and 24 (Test Plans, Test Notifications and Test Reports) when the exhaust is observed for visible emissions under conditions 40-42.

#### Corrective Actions Based on Visible Emissions Observations

- 44. If visible emissions are present in the exhaust during an observation performed under condition 40.2, the Permittee shall:
  - 44.1 Take actions to reduce visible emissions from the source within 24 hours of the observation;
  - 44.2 Keep a written record of the starting date, the completion date, and a description of the actions taken to reduce visible emissions; and
  - 44.3 After completing the actions taken to reduce visible emissions, observe the visible emissions in accordance with condition 40.2. If visible emissions are present in the exhaust during any of the next 30 observations, then observe the exhaust in accordance with condition 40.1 no later than 14 calendar days after the visible emissions are first observed, or within in 6 months after the issue date of this permit, whichever is later.

#### Particulate Matter Testing

- 45. The Permittee shall conduct tests to determine the concentration of particulate matter in the exhaust of a source as follows:
  - 45.1 Conduct the tests according to the requirements set out in Section 8 of this permit;
  - 45.2 During each test, observe visible emissions in accordance with Section 12 and calculate the average opacity that was measured during the test. Submit the results of the visible emission observations and the calculation with the source test report.
  - 45.3 Conduct the tests no later than 90 days after any time a 60-minute visible emission observation performed under this Section results in:
    - 45.3.1 13 or more 15-seconds readings with an opacity greater than 20%; or

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45.3.2 A six-minute average opacity that is greater than 12% for a source with an exhaust stack diameter that is less than 21 inches.

#### Reporting Requirements

- 46. The Permittee shall, within 180 calendar days after the effective date of this permit, record and report the exhaust stack diameter of each Source IDs 1, 2, 5, and 6 report this information to the Department with the first report required by condition 30.
- 47. The Permittee shall keep a record of the operating hours for each Source IDs 1, 2, 5, and 6, and submit these records with the report required by condition 30.
- 48. The Permittee shall notify the Department in each facility operating report required by condition 30 which visible-emission plan in condition 40 was used for each source. The Permittee shall also submit with the facility operating report copies of the observation results for each source that used the Method-9 Plan (condition 40.1). The Permittee shall also indicate in the facility operating report the number of calendar days that smoke was observed for each source that used the Smoke/No-Smoke Plan (condition 40.2).
- 49. For all 60-minute visible emissions observations that occurred during an applicable reporting period, the Permittee shall submit copies of observation results with the report required by condition 30.
- 50. Report per condition 29 if:
  - 50.1 A 60-minute visible emission observation results in:
    - 50.1.1 13 or more 15-seconds readings with an opacity greater than 20%;
    - 50.1.2 A six-minute average opacity that is greater than 12% for a source with an exhaust stack diameter that is less than 21 inches; or
  - 50.2 The results of a test for particulate matter exceed the particulate matter emission limit.

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#### Section 12. Visible Emission Evaluation Procedures

An observer qualified according to 40 C.F.R. 60, RM 9 shall use the following procedures to determine the reduction of visibility through the exhaust effluent.

**Position.** The qualified observer shall stand at a distance sufficient to provide a clear view of the emissions with the sun oriented in the 140° sector to his back. Consistent with maintaining the above requirement, the observer shall, as much as possible, make his observations from a position such that his line of vision is approximately perpendicular to the plume direction and, when observing opacity of emissions from rectangular outlets (e.g., roof monitors, open baghouses, noncircular stacks), approximately perpendicular to the longer axis of the outlet. The observer's line of sight should not include more than one plume at a time when multiple stacks are involved, and in any case, the observer should make his observations with his line of sight perpendicular to the longer axis of such a set of multiple stacks (e.g., stub stacks on baghouses). The observer shall maintain a distance of at least 15 feet from the emission point.

**Field Records.** The observer shall record the name of the plant, emission location, facility type, observer's name and affiliation, and the date on the Visible Emissions Field Data Sheet. The time, estimated distance to the emission location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), and plume background are recorded on the sheet at the time opacity readings are initiated and completed.

**Observations.** Opacity observations shall be made at the point of greatest opacity in that portion of the plume where condensed water vapor is not present. The observer shall not look continuously at the plume but instead shall observe the plume momentarily at 15-second intervals. Unless directed to do otherwise in this permit, observe emissions for 60 consecutive minutes to obtain a minimum of 240 observations.

**Attached Steam Plumes.** When condensed water vapor is present within the plume as it emerges from the emission outlet, opacity observations shall be made beyond the point in the plume at which condensed water vapor is no longer visible. The observer shall record the approximate distance from the emission outlet to the point in the plume at which the observations are made.

**Detached Steam Plume.** When water vapor in the plume condenses and becomes visible at a distinct distance from the emission outlet, the opacity of emissions should be evaluated at the emission outlet prior to the condensation of water vapor and the formation of the steam plume.

**Recording Observations.** Opacity observations shall be recorded to the nearest 5 percent at 15-second intervals on the Visible Emissions Observation Record contained in this Section. Record the minimum number of observations required by the permit. Each momentary observation recorded shall be deemed to represent the average opacity of emissions for a 15-second period.

**Data Reduction.** To determine compliance with a standard set out in Permit condition 3, count the number of observations that exceed 20 percent opacity and record this number on the sheet.

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#### Visible Emissions Field Data Sheet

Certified Obs	server:				
Company:			Stack with Plume	SOURCE	AYOUT SKETCH Draw North Arrow
Location:			Sun Wind		X Emission Point
Test No.:		Date:			
	Source:				
	Operating Rate & t Operating Hours:				
	Hrs. of observation:				Observers Position
Г	irs. of observation:				
				Sun Lo	ocation Line

Clock Time	Initial		Final
Observer location Distance to discharge			
Direction from discharge			
Height of observer point			
Background description			
Weather conditions Wind Direction			
Wind speed			
Ambient Temperature			
Relative humidity			
Sky conditions: (clear, overcast, % clouds, etc.)			
Plume description: Color			
Distance visible			
Water droplet plume? (Attached or detached?)			
Other information			

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Visible	Emissio	ns Obs	servatio	n Rec	ord				Page	of
Company			Cert	ified Ob	server_				r age	_ 01
Test Num	ıber					-				
Date:			bility reduction every 15 Seconds (Opacity)		Steam Plume (check if applicable)		C	Comments		
Hr	Min	0	15	30	45	Attached	Detached			
	ıl informa									
<b>Data Red</b> Duration Number of	Signature luction: of Observe of Observe of Observe	ation Per		·						
Average	Opacity S	Summar	y							
	Set				me			Opacity		
	Number			Start-	—End		Sum		Average	

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#### Section 13. Material Balance Calculation

If the sulfur content of a fuel shipment is greater than 0.5% by weight, calculate the three-hour exhaust concentration of SO<sub>2</sub> using the following equations:

The  $wt\%S_{fuel}$ ,  $wt\%C_{fuel}$ , and  $wt\%H_{fuel}$  are equal to the weight percents of sulfur, carbon, and hydrogen in the fuel. These percentages should total 100%.

The fuel weight percent (wt%) of sulfur is obtained pursuant to condition 5.2. The fuel weight percents of carbon and hydrogen are obtained from the fuel refiner.

The volume percent of oxygen in the exhaust (vol%<sub>dry</sub>O<sub>2, exhaust</sub>) is obtained from oxygen meters, manufacturer's data, or from the most recent ORSAT analysis at the same engine load used in the calculation.

Enter all of the data in percentages without dividing the percentages by 100. For example, if  $\mathbf{wt\%S_{fuel}} = 1.0\%$ , then enter 1.0 into the equations not 0.01 and if  $\mathbf{vol\%_{dry}O_{2}}$ ,  $\mathbf{exhaust} = 3.00\%$ , then enter 3.00, not 0.03.

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Telephone: (907) 269-8888

#### Section 14. ADEC Notification Form

Signature:

Fax this form to: (907) 269-7508

Cordova Electric Cooperative, Inc **Company Name** Orca Power Plant **Facility Name** Reason for notification: 1. □ Permit Condition Exceedence □ Excess Emission **Event Information** (Use 24-hour clock): 2. **START** Time: **END** Time: Duration (hr:min): Date: \_\_\_\_\_ Total: 3. **Cause of Event** (Check all that apply): ☐ UPSET CONDITION □ START UP ☐ CONTROL EQUIPMENT ☐ SHUT DOWN □ SCHEDULED MAINTENANCE □ OTHER Attach a detailed description of what happened, including the parameters or operating conditions exceeded. 4. Sources Involved: Identify each Emission Source involved in the event, using the same identification number and name as in the Permit. List any Control Device or Monitoring System affected by the event. Attach additional sheets as necessary. Source ID No. Source Name Description Control Device 5. **Emission Limit and/or Permit Condition Exceeded:** Identify each Emission Standard and Permit Condition exceeded during the event. Attach a list of ALL known or suspected injuries or health impacts. Attach additional sheets as necessary. Permit Condition Limit Exceedence **Emission Reduction:** 6. Attach a detailed description of ALL of the measures taken to minimize and/or control emissions during the event. 7. **Corrective Actions:** Attach a detailed description of ALL corrective actions taken to restore the system to normal Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete. Printed Name:

Date

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#### Section 15. Vendor Determined Emission Factors

Table 2:  $NO_X$  Emission Factors for Source IDs 5 and 6 at Various Loads

	Source IDs 5 and 6 Caterpillar 3516
Load (pct)	Emission Factor (lb/gal)
100	0.5475
50 to 99	0.6113
25 to 49	0.5942
0 to 24	0.5022

Note: Emission Factors determined using vendor supplied data for Caterpillar 3516 engines.

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## Section 16. Application Documents

December 20, 1994	Air Quality Control Permit to Operate No. 9422-AA008.
April 24, 1995	Air Quality Control Permit to Operate No. 9422-AA008, Amendment 2.
March 29, 1996	Air Quality Control Permit to Operate No. 9422-AA008, Amendment 3.
	Department Records summarizing source testing information on various diesel engines.
May 15, 2000	Air Quality Construction Permit Application Orca Generating Station.
May 25, 2000	Submission of Additional Information for the AQC Permit Application, Cordova Electric Cooperative, Orca Plant.
May 31, 2000	Second Submission of Additional Information for the AQC Permit Application, Cordova Electric Cooperative, Orca Plant.
September 28, 2000	Compliance Order By Consent (COBC-00-338-50-1545).